

January 15, 1964

Dr. A. E. Axelrod  
Department of Biochemistry  
University of Pittsburgh  
Pittsburgh, Pennsylvania

Dear Abe,

The uniqueness of our laboratory course for the first year medical students is due, I think, to the fact that we do not have a laboratory manual. The general idea of our course has been to do away with the classical experiment 1 - 53 type and to replace it with one in which students develop the experiments as they go along. What we've done is to divide the quarter into two halves, each one being designated by some broad heading such as "Studies on an Enzyme" and "Studies on Nucleic Acids". The class is divided up into rooms of 16 students each and subgroups of two students. We, along with the class as a whole, choose an enzyme that would be of interest for further study (the teaching trick is to get the class to choose the enzyme we want them to study). We have in mind an assay they can use, but any group is free to develop their own method of assaying the enzyme. They then work out a purification introducing any modifications or new wrinkles that they want. Having available the purified enzyme, there are any number of things they could do with it. We have developed several types of experiments including measuring the stoichiometry, substrate specificity and kinetics, effect of heat and proteolytic enzymes on the enzyme, and the protection against these agents by substrates and inhibitors. Students are free therefore to originate or suggest any experiment they like. We encourage them to write their own protocols and the staff is available to discuss their experimental approach and results throughout the day. In this way we try to get them to work intensively in one area but to develop in them a feel and appreciation for the experimental approach. The second part uses the same ideas except in the area of nucleic acid structure and enzymology. This has worked very well over 4 years and we are quite happy with it.

I am enclosing some descriptions of some of the kinds of experiments that students have attempted during these four years we have taught the course. They are meant to be an outline for guiding the student's effort rather than as a cookbook. If you have any additional questions about it, please let me know.

Sincerely yours,

Paul Berg

PB:cm